

Compositae of the Guayana Highland—XI. *Tuberculocarpus* gen. nov. and Some Other Ecliptinae (Heliantheae)

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ABSTRACT. A new genus from Venezuela, *Tuberculocarpus*, is described and illustrated, and the combination *T. ruber* is made. *Thelechitonia* and *Complaya* are placed in synonymy of the formerly unispecific *Sphagneticola*, and a lectotype is chosen for the generitype *S. ulei* and for *Verbesina calendulacea*. *Sphagneticola* includes cultivated *Wedelia trilobata*, and the combinations *S. brachycarpa*, *S. calendulacea*, *S. gracilis*, and *S. trilobata* are made. *Wulffia* is a taxonomic synonym of *Tilesia*, and combinations in *Tilesia* are proposed for the three species and one variety formerly placed in *Wulffia*: *Tilesia baccata*, *T. macrocephala*, *T. rubens*, and *T. baccata* var. *discoidea*. The basionym of the most widespread species of *Tilesia* (*Coreopsis baccata*) has previously been attributed to Linnaeus filius, but was published earlier by Linnaeus. *Elaphandra moriana* from French Guiana is described, and the combination *Elaphandra lehmannii* is made. *Oyedaea wurdackii* is described from Venezuela and is illustrated, and the combination *Oyedaea tepuiana* is proposed. The combination *Verbesina ligulata* is provided, and *V. guianensis* is lectotypified and is an earlier name for *V. schomburgkii*. *Elaphandra sucrensis* is reduced to synonymy of *E. verbesinoides*, *E. lucidula* is reduced to *E. ulei*, *Oyedaea blakeana* is reduced to *O. scaberrima*, and *Wulffia trujilloi* is reduced to *Tilesia macrocephala*.

The Ecliptinae Lessing (including Verbesininae Benth.) of the Heliantheae (Compositae) are difficult taxonomically, both at the generic and specific levels. The traditional generic and subtribal classifications of this group by Benth. (1873) and Hoffmann (1890–1894) have been much revised in the recent past. The classification used here is that of Robinson (1981), but recent modifications by Robinson (1984a, 1992, and literature cited therein) and Strother (1991, and literature cited therein) are accepted. Features most commonly employed in classifications include anther, style, cypsela, and pappus characters, and fertility of the ray florets. Karis and Ryding (1994) used the name Verbesininae for much of the Ecliptinae.

The following novelties and adjustments involve taxa primarily from the Guayana Highland of north-eastern South America. These novelties are proposed prior to the appearance of many of them in the *Compositae of the Guayana Highland*, the *Guide to the Vascular Plants of Central French Guiana*, the *Flora of St. John, U.S.V.I.*, and the *Flora of the Venezuelan Guayana*. A map (Fig. 1) is given for the six Guayana Highland endemics proposed or transferred here. The genera treated herein are restricted to the New World, with the exception of *Sphagneticola* O. Hoffmann. Generic restructuring proposed here includes reduction of *Complaya* Strother and *Thelechitonia* Cuatrecasas to synonymy of *Sphagneticola*, which necessitates the transfer of the species of *Wedelia trilobata* (L.) Hitchcock group to *Sphagneticola*; the reduction of *Wulffia* Necker ex Cassini to synonymy of *Tilesia* G. Meyer, including the transfer of *Wulffia baccata* (L.) Kuntze to *Tilesia*; and the description of *Tuberculocarpus* Pruski, a generic segregate of the *Aspilia* Thouars-*Wedelia* Jacquin alliance.

ELAPHANDRA

Strother (1991) recently proposed the segregate *Elaphandra* from the *Aspilia*-*Wedelia* alliance. The limits of formerly unispecific *Elaphandra* were expanded by Robinson (1992; 1994) to include 11 additional species (only 10 of which are recognized here), many of which were suggested by Strother (1991; in sched.) as belonging to *Elaphandra*. The combination proposed here and the description of *Elaphandra moriana* Pruski raises to 13 the number of species in the genus.

The species of *Elaphandra* have sterile ray florets (when present) and would previously have fit into the concept of *Aspilia*, now a synonym of *Wedelia*. *Elaphandra* was not reported (nor was *Aspilia*) in the Guianas by Funk (1991), and *E. moriana* is the first species of the genus known in the Guyana Highland. The type of *E. moriana* was listed by Cremers and Hoff (1995) as *W. fruticosa* Jacquin, which is unknown in French Guiana. *Elaphandra* is diagnosed by eglandular leaves, by rays sterile

when present (one species is discoid), by ovate eglandular anther appendages, these commonly abaxially black though sometimes tan within or distally, by erect or laxly recurved (not strongly coiled) papillose style branches, by rostrate (necked) cypselas that have a reduced or aristate pappus, and by lack of obvious carpodia and elaiosomes.

Elaphandra lehmannii (Hieronymus) Pruski, comb. nov. Basionym: *Aspilia lehmannii* Hieronymus, Bot. Jahrb. Syst. 28: 605. 1901. *Wedelia lehmannii* (Hieronymus) B. L. Turner, Phytologia 72: 393. 1992. SYNTYPES: Colombia. Risaralda: in silvis prope Arrayanal ad fluvium Río Risaralda, 1400–1800 m, 24 Oct. 1883, *Lehmann* 3282 (B destroyed [photograph, NY, US]); locality not indicated, *Triana* 1363 (not seen) and *Triana* 1365 (not seen). Lectotypification is deferred, because not all syntypes were studied.

Distribution. Andean Colombia and presumably extending southward into Ecuador.

This species is one of four placed in *Elaphandra* Group I of Robinson (1992), and possibly includes the very similar *Aspilia patentipilis* S. F. Blake. Specimens in US determined by Blake as *A. patentipilis* tend to have hairier stems, fewer capitula, these with very long outer phyllaries, and longer peduncles. If these distinctions are consistently found in future collections, then a combination in *Elaphandra* may be needed for *A. patentipilis*. It seems best to view *E. lehmannii* in a broad sense, presently including *A. patentipilis*. Furthermore, *E. quinquinervis* (S. F. Blake) H. Robinson, which has 5-veined leaves, is very closely related to *E. lehmannii* and may not prove to be distinct. If the two above species are placed in synonymy of *E. lehmannii* the distribution of *E. lehmannii* would range from the eastern to the western cordilleras of Colombia and southward into Ecuador.

Elaphandra moriana Pruski, sp. nov. TYPE: French Guiana. Inselberg granitique à l'extrémité nordouest des Monts de la Trinité, 4 Aug. 1981, *J. de Granville* 4741 (holotype, US; isotype, US). Figure 1.

Suffrutex scandens; caules strigosi; folia simplicia opposita petiolata, lamina 4–12 × 0.8–5.2 cm chartacea eglandulosa; capitulescentia cymosa vel monocephala; capitula radiata paleacea, flosculis 30–34; phyllaria strigosa herbacea basi scariosa; flosculi radiati 5 vel 6 steriles, corolla luteola 5.5–6.5 mm longa; flosculi disci 24–29 hermaphroditi, corolla luteola ca. 4.2 mm longa; antherae nigrae, appendicibus apicalibus stramineis eglandulosis; achaenia rostrata nigra, aristis 2–4 fragilibus caducis 1.5–3.2 mm longis.

Scandent shrub to 2 m tall; stems weak, subterete, strigose, the internodes 2.5–7(–11) cm long, usually much shorter than the subtending leaves. Leaves simple, opposite, petiolate; petioles 0.5–1.5 cm long, strigose-hispidulous, thin, not obviously canaliculate; blades elliptic-lanceolate to elliptic, 4–12 × 0.8–5.2 cm, chartaceous, weakly triplinerved from well above base, basally cuneate or sometimes attenuate, the margins serrulate, apically acute to acuminate, the surfaces eglandular, without black dots, the adaxial surfaces green, scabrous, the abaxial surfaces pale green, hispidulous, especially so on larger veins. Capitulescences cymose or sometimes monocephalous, terminal or axillary from the most distal node, of 1–3 long-pedunculate capitula held slightly above the subtending leaves; peduncles erect, 2–5 cm long, densely hispid-strigose. Capitula radiate, 30–34-flowered; involucre campanulate, 6–9 × 6–8 mm; phyllaries 10–13, in ca. 2 series, imbricate, subequal, herbaceous or inner ones scarious at base, oblong, 5–9 × 2–2.5 mm, strigose, not black-streaked, the apices broadly acute to rounded; receptacles flat, 2.5–3 mm diam., paleate, the pales conduplicate, 5–6.5 × 1–1.4 mm, glabrous, stramineous, the apices acuminate. Ray florets (immature) 5 or 6, sterile, lacking styles; corollas yellow, 5.5–6.5 mm long, the tubes ca. 1 mm long, glabrous, the limbs 4.5–5.5 × 2.5–3 mm, eglandular, shortly bilobed at the apices, 6–8-veined with 2 veins larger than the others, these abaxially puberulent distally. Disk florets 24–29, bisexual; corollas actinomorphic, yellow, not black-streaked, tubular-funnelform, ca. 4.2 mm long, the tubes ca. 1.1 mm long, glabrous, the throats ca. 2.4 mm long, glabrous, the lobes 0.7–0.9 mm long, long-triangular, weakly puberulent; anthers weakly exerted, ca. 2.3 mm long, the thecae black, the apical appendages ovate, black at base, tan distally, eglandular, the filaments 1.2 mm long; style branches ca. 1.5 mm long, papillose, slightly spreading, with paired stigmatic lines, the apices narrowed. Ray ovaries sterile, 2.8–3 mm long, obconic, 3-angled, ciliate on the ribs, 3-aristate, the aristae 1.8–2.4 mm long, subequal to unequal. Disk cypselas 4–4.2 × 1.5–2 mm, obovate, slightly compressed, black, weakly puberulent on necks and shoulders, lacking elaiosomes and carpodia; pappus 2–4-aristate, the aristae subequal to unequal, 1.5–3.2 mm long, fragile and easily knocked off, arising from a low fimbriate crown ca. 0.6 mm tall.

Distribution and ecology. This species is known only from the type collection made on a granitic inselberg (laja) in the northwestern sector of Monts de la Trinité in French Guiana. It was collected in flower in August.

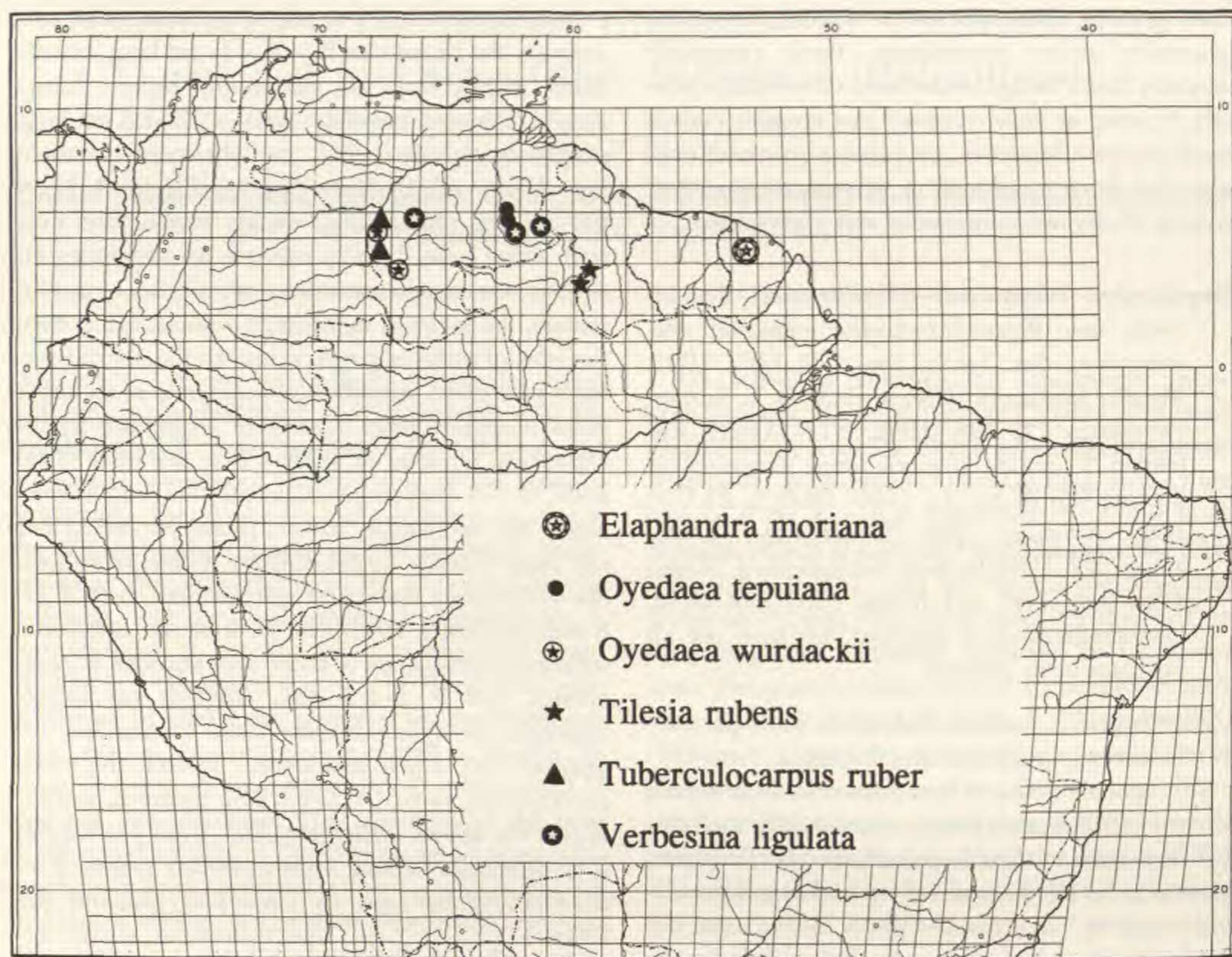


Figure 1. Distributions of *Elaphandra moriana* Pruski, *Oyedaea tepuiana* (V. Badillo) Pruski, *Oyedaea wurdackii* Pruski, *Tilesia rubens* (Alexander) Pruski, *Tuberculocarpus ruber* (Aristeguieta) Pruski, and *Verbesina ligulata* (Maguire & Wurdack) Pruski.

This is the first *Elaphandra* known in the Guayana Highland. *Elaphandra verbesinoides* and *E. ulei* are the nearest geographical relatives. They differ from *E. moriana* by membranous leaves that are black-dotted, and by black-streaked phyllaries or corollas, which place them in Group II of Robinson (1992). *Elaphandra moriana* has chartaceous non-black-dotted leaves, radiate capitula, non-hispid pales that are apically acuminate, and non-black-streaked phyllaries and corollas, which place it as the fourth species referable to Group I of Robinson (1992). It differs from the three Andean species of this group by smaller capitula, a well-developed aristate pappus, and distally tan anther appendages.

I am happy to name this new species for Scott Mori, Director of the Institute of Systematic Botany of The New York Botanical Garden. Scott pointed my eyes eastward in the Guayana Highland through his fine collections made for his forthcoming *Guide to the Vascular Plants of Central French Guiana*. *Elaphandra moriana* is named in conjunction with my treatment of the Compositae in this flora.

Elaphandra verbesinoides (DC.) H. Robinson, *Phytologia* 72: 148. 1992. *Gymnopsis verbesinoides* DC., *Prodr.* 5: 561. 1836. *Aspilia verbesinoides* (DC.) S. F. Blake, *Proc. Biol. Soc. Wash.* 34: 120. 1921. TYPE: Trinidad. Without date, *J. Lockart* s.n. (holotype, G-DC not seen [photograph, US; IDC microfiche 800. 941.III.6]; isotypes, GH not seen [photograph, US], K not seen).

Aspilia sucrensis Aristeguieta, *Acta Bot. Venez.* 1(2): 80. 1966. Syn. nov. *Elaphandra sucrensis* (Aristeguieta) V. Badillo, *Revista Fac. Agron. (Maracay)* 45: 95. 1994 [1995]. TYPE: Venezuela. Sucre: Península de Paria, Cerro Patao, norte de Puerto de Hierro, nordeste de Güiria, fila seca en la cumbre, 875 m, 25–26 July 1962, *Steyermark & Agostini* 91337 (holotype, VEN; isotypes, NY, US—2).

Distribution. Venezuela (Sucre) and Trinidad.

Elaphandra sucrensis is added to the synonymy of *E. verbesinoides* given by Robinson (1992). *Elaphandra verbesinoides* is closely related to Amazonian (Bolivian and Brazilian) *E. ulei* [*E. lucidula* (S. F. Blake) H. Robinson, syn. nov.], the latter dif-

fering by shorter petioles, often by more rounded leaf bases, and by fewer capitula, these frequently on longer peduncles. It is possible that *E. verbesinoides* or the related *E. ulei* will eventually be found in the Venezuelan Guayana or the Guianas. *Elaphandra verbesinoides* and *E. ulei* belong to *Elaphandra* Group II of Robinson (1992), which contains four species characterized by black-spotted leaves and black-streaked phyllaries or corollas.

OYEDAEA

Oyedaea DC. is largely Andean and contains about 15 species, 6 in Venezuela, and 3 of these in the Guayana Highland. The Brazilian species once referred to *Oyedaea* were transferred by Robinson (1984b) to *Dimerostemma* Cassini, which includes not only the 11 species treated by Robinson, but also the invalid *D. oblonga* (Baker) Barroso, not keyed by Robinson. *Oyedaea* and *Dimerostemma* have sterile ray florets and winged disk cypselas, but *Dimerostemma* differs from *Oyedaea* by its distinctly foliar outer series of phyllaries and coiled style branches. *Oyedaea* is further distinguished by its disk cypselas with two slender awns and an apical neck.

Oyedaea is expanded here to include *Zexmenia tepuiana* V. Badillo and a newly described species, both endemic to the Venezuelan Guayana. Additional collections are needed to accurately place *O. verbesinoides* var. *hypomalaca* Steyermark. This taxon should not be recognized as a variety of *O. verbesinoides*, but rather included in the synonymy of *O. maculata* S. F. Blake (also of northeastern Venezuela), or, alternatively, elevated to the species level. The key to the Venezuelan taxa of *Oyedaea* given by Aristeguieta (1964) is modified here to include the new synonymy and two novelties.

KEY TO THE VENEZUELAN TAXA OF OYEDAEA

- 1a. Leaves strongly triplinerved from above base.
 - 2a. Corollas white; Amazonas . . . *O. wurdackii* Pruski
 - 2b. Corollas yellow.
 - 3a. Involucres 10–14 mm tall; phyllaries strigose, outer ones lanceolate; ray limbs 15–20 × 4–6 mm; widespread in the Caribbean coastal ranges, less frequent in the Andes, also Trinidad, Colombia, Panama, and Costa Rica (includes *O. verbesinoides* var. *glabior* Steyermark, syn. nov.) . . .
 . . . *O. verbesinoides* DC. var. *verbesinoides*
 - 3b. Involucres 5–6.5(–10) mm tall; phyllaries puberulent, outer ones obpyriform; ray limbs ca. 10 × 3 mm; Bolívar . . .
 . . . *O. tepuiana* (V. Badillo) Pruski
- 1b. Leaves ± pinnately veined.
 - 4a. Inner phyllaries rounded at the apices; Lara and Trujillo *O. obovata* S. F. Blake
 - 4b. Inner phyllaries apically acute.

- 5a. Leaves tomentose abaxially; Monagas *O. verbesinoides* var. *hypomalaca* Steyermark
- 5b. Leaves puberulent abaxially.
 - 6a. Ray limbs 10–13 × 2–4.5 mm; Amazonas and Bolívar (includes *O. blakeana* Steyermark, syn. nov.) . .
 . . . *O. scaberrima* (Benth.) S. F. Blake
 - 6b. Ray limbs 18–20 × 5–5.5 mm; Anzoategui and Sucre
 *O. maculata* S. F. Blake

Oyedaea tepuiana (V. Badillo) Pruski, comb. nov.
Basionym: *Zexmenia tepuiana* V. Badillo, *Ernstia* 30: 1. 1985. TYPE: Venezuela. Bolívar: Dto. Piar, Karún-tepui, 17 km E of Canaima, 6°14'N, 62°43'W, 1050 m, 31 Aug. 1983, *Prance & Huber* 28382 (holotype, MY; isotypes, K, MO, MYF not seen, NY, VEN). Figure 1.

Distribution. This species is endemic to Auyán-tepui, Cerro Venado, and Kurún-tepui in Bolívar, Venezuela, from 1050 to 1360 m elevation, but should be looked for in neighboring Brazil and Guyana.
This species has sterile ray florets typical of *Oyedaea* and is misplaced in the sister genus *Zexmenia* La Llave, which has pistillate ray florets.

Oyedaea wurdackii Pruski, sp. nov. TYPE: Venezuela. Amazonas: Dpto. Atures, carretera Pto. Ayacucho hacia Samariapo, km 27, 6 km al sur Tobogán de la Selva, 5°24'N, 67°37'W, 28 Sep. 1993, *A. Gröger* 1125 (holotype, VEN; isotype, US). Figures 1, 2A–F, 3.

Flosculis radiatis sterilibus necnon disci achaeniis compressis alatis biaristatis cum genere *Oyedaea* perfecte congrua, sed a congeneribus omnibus corollis (tam disci quam radiatis) albis (nec luteis) diversa.
Shrubs 0.5–3 m tall; *stems* subterete or subhexagonal, strigose, the internodes 1–6 cm long, shorter to very much shorter than the subtending leaves. *Leaves* simple, opposite, petiolate; *petioles* 5–10 mm long, strigose, stout and much broadened at base, those of the same node often connected by a narrow rim; *blades* elliptic-lanceolate, 4.5–13 × 1.2–5.6 cm, chartaceous, triplinerved from well above base, basally cuneate to attenuate, the margins serrulate to serrate, apically narrowly acute to attenuate, the surfaces eglandular, the adaxial surfaces green, scabrous, the abaxial surfaces pale green, strigose, especially so on larger veins, also with scattered moniliform hairs. *Capitulescences* cymose, open, terminal or axillary from the distal nodes, of 9–15 capitula held above the subtending leaves, at anthesis somewhat congested, rounded, ca. 5–9 cm tall and broad, in fruit sometimes more open; *peduncles* 0.5–3.5 cm long, hispid



Figure 2. A–F. *Oyedaea wurdackii* Pruski. —A. Capitulum with ray corollas removed. —B. Phyllary. —C. Ray floret. —D. Pale. —E. Disk floret. —F. Disk cypsela. G–L. *Tuberculocarpus ruber* (Aristeguieta) Pruski. —G. Capitulum with front ray corollas removed. —H. Involucre. —I. Ray floret. —J. Pale. —K. Disk floret. —L. Disk cypsela. A–C from Gröger 625 (US); D–F from Maguire et al. 30583 (NY); G, I–K from Gentry & Berry 14567 (NY, US); H from Davidse & Huber 15381 (US); L from Huber 3787 (NY).



Figure 3. *Oyedaea wurdackii* Pruski (type collection Gröger 1125). Photo taken by Andreas Gröger in Amazonas, Venezuela.

to strigose. *Capitula* radiate, 35–53-flowered; *involucres* narrowly campanulate, $7\text{--}10 \times 5\text{--}10$ mm; *phyl-laries* ca. 18, in ca. 3 series, imbricate, graduate, lanceolate, $6\text{--}10 \times 1.5\text{--}3$ mm, rigid, broad and scarious at base, the apices herbaceous, strigose, narrowly attenuate to cuspidate, commonly reflexed; *receptacles* flat, ca. 5 mm diam., paleate, the pales conduplicate, often keeled near apices, to 10×1.4 mm, firm, scarious basally, the apices subherbaceous, sometimes suffused with purple, stiffly attenuate. *Ray florets* ca.

10, sterile, lacking styles; *corollas* white, $10.5\text{--}12.3 \times 2\text{--}2.5$ mm, the tubes $1.2\text{--}1.8$ mm long, glabrous, the limbs $9.3\text{--}10.5 \times 3\text{--}4$ mm, shortly 2- or 3-lobed at apices, ca. 7-veined with 2 veins larger than the others, abaxially puberulent. *Disk florets* 25–43, bisexual; *corollas* actinomorphic, white, tubular-funnel-form, $7.5\text{--}8.3$ mm long, the tubes $2\text{--}2.2$ mm long, glabrous, the throats $5.1\text{--}5.3$ mm long, glabrous, the lobes $0.7\text{--}0.8$ mm long, triangular, puberulent-papillose within, sometimes weakly puberulent on outer

surfaces; *anthers* slightly to much-exserted, ca. 3 mm long, the thecae black, the apical appendages elongate, black, eglandular, the connectives black when young to cream-colored, the filaments 2.5–3.5 mm long; *style branches* ca. 1 mm long, papillose, laxly recurved, with paired stigmatic lines, the apices narrowed. *Ray ovaries* sterile, 2.5–3.5 mm long, obconic, 3-awned, the awns 1.5–3(–4.5) mm long, subequal to unequal. *Disk cypselas* compressed, winged, 5–6 × 1.5–2.5 mm, the body black, weakly puberulent, the wings ciliate, cream-colored, ca. 0.5 mm broad at maturity; *pappus* stoutly 2-awned, the awns scabridulous, subequal to unequal, 2–3.3 mm long, these exserted from the involucre and often reaching to the top of the pales, the squamellae between the awns ca. 5, to 1 mm long.

Distribution and ecology. This species is known only from Amazonas, Venezuela, at elevations from 100 m to under 1000 m (J. Wurdack, pers. comm.), at the escarpment base and slope of the northwestern part of Cerro Yapacana, in secondary growth on recently burned granitic lajas of Cerro Caldero and Cerro Danto, and in secondary areas at Tobogán de la Selva near Coromoto. It is known to flower in January, September, and December. The species is to be expected from adjacent regions of Bolívar, Venezuela, and Vichada, Colombia.

This new species matches yellow-flowered *Oyedaea* as circumscribed by Blake (1921) except in (white) corolla color. All other oyedaeas have yellow corollas. The triplinerved leaves and open capitulescence of *O. wurdackii* most closely resemble those of *O. tepuiana*.

I am pleased to name this *Oyedaea* after one of its discoverers, my friend and colleague John Julius Wurdack. John is a co-discoverer of Cerro de la Neblina and one of the foremost authorities on the plants of Guayana. In the 1950s as a staff member of The New York Botanical Garden he published or co-published 6 new genera and 36 new species of Compositae from Guayana, thus the dedication of this new composite to him is appropriate and well-deserved.

Paratypes. VENEZUELA. **Amazonas:** Dpto. Atures, Río Sipapo, 5 km de su desembocadura al Río Orinoco, Cerro Caldero, 5°01'N, 67°46'W, 17 May 1992 (late fruit), A. Gröger & J. Barcroft 413 (US, VEN); Dpto. Atures, carretera Pto. Ayacucho hacia Samariapo, km 19, Cerro Danto al lado oriental de la carretera, 5°30'N, 67°35'W, 11 Dec. 1992, A. Gröger 625 (US, VEN); NW slopes of Cerro Yapacana, 1 Jan. 1951, B. Maguire, R. Cowan & J. Wurdack 30583 (NY); Cerro Yapacana, base of NW escarpment, 2 Jan. 1951, B. Maguire, R. Cowan & J. Wurdack 30638 (NY).

SPHAGNETICOLA

In the course of routine work for neotropical floristic treatments I saw a photograph of a plant seemingly the same species as the widely known *Wedelia trilobata* (L.) Hitchcock. This photograph, however, was labeled as a phototype of *Sphagneticola ulei* O. Hoffmann, a name with which I was unfamiliar. Robinson's (1981) observation that the black anthers and the cypselas with a fimbriate coroniform pappus found in unispecific *Sphagneticola* O. Hoffmann "indicate a probable place in the Ecliptinae" and the placing of *W. trilobata* in a new genus (*Complaya*) by Strother (1991) furthered my interest. I have now seen type material of *S. ulei*, which indeed proves to be conspecific with the widespread plant known in cultivation in the tropics and subtropics of both hemispheres as *W. trilobata* (n.v. *Wedelia*, Creeping ox-eye, Wild marigold, etc.). *Sphagneticola* is not only squarely positioned within Ecliptinae sensu Robinson (1981), but it is a generic name (earlier than *Complaya* and *Thelechiton*) for *W. trilobata*; thus the combination *S. trilobata* (L.) Pruski is proposed.

Sphagneticola trilobata differs from most wedelias by being a stoloniferous herb rooting at the nodes with stems elongating sympodially, thereby laterally displacing the terminal capitula; by abaxially glandular ray limbs; by black ovate anther appendages; and by tuberculate cypselas without well-developed carpodia and without elaiosomes or pappus awns. It and two other species were recently treated at the generic rank (as *Complaya*) by Strother (1991). A fourth species of this group was treated by Cuatrecasas (1954) as *Thelechiton* *muricata* Cuatrecasas. Angel Cabrera noted that *Thelechiton* *muricata* is conspecific with *W. brachycarpa* Baker (J. Cuatrecasas, pers. comm.), and the name *Thelechiton* was treated as a synonym of *Wedelia* by Robinson (1981). Robinson and Cuatrecasas (1992), prompted by Strother's publication of *Complaya*, resurrected *Thelechiton* and treated *Complaya* as a generic synonym of *Thelechiton*. They expanded *Thelechiton* to include four species.

The types of *Sphagneticola ulei* and *Wedelia trilobata* are conspecific, and the earlier generic name must be used for this group of four species. I provide an updated generic synonymy and four new combinations in *Sphagneticola*. The generic and specific circumscriptions of Strother (1991) and Robinson and Cuatrecasas (1992) are followed. An earlier epithet (blocked in *Wedelia*, but available here) is used for the paleotropical plant most widely known as *W. chinensis* (Osbeck) Merrill.

Sphagneticola O. Hoffmann, Notizbl. Königl. Bot. Gart. Berlin 3: 36. 1900. TYPE: *Sphagneticola ulei* O. Hoffmann [= *Sphagneticola trilobata* (L.) Pruski].

Wedelia sect. *Stemmodon* Grisebach, Fl. Brit. W. I. 371. 1861. TYPE: not designated, but including only *Wedelia carnea* Richard, nom. illeg. [= *Sphagneticola trilobata* (L.) Pruski] and *Wedelia gracilis* Richard [= *Sphagneticola gracilis* (Richard) Pruski].

Thelechitonia Cuatrecasas, Bull. Soc. Bot. France 101: 242. 1954. Syn. nov. TYPE: *Thelechitonia muricata* Cuatrecasas [= *Sphagneticola brachycarpa* (Baker) Pruski].

Complaya Strother, Syst. Bot. Monogr. 33: 10. 1991. TYPE: *Silphium trilobatum* L. [= *Sphagneticola trilobata* (L.) Pruski].

Sphagneticola contains four species that are common at lower elevations throughout much of the tropics and subtropics (though not known to occur in Africa), often near waterways or along coasts: *S. trilobata*, *S. brachycarpa* (Baker) Pruski, *S. calendulacea* (L.) Pruski, and *S. gracilis* (Richard) Pruski. Two species, *S. trilobata* and *S. brachycarpa*, are known in the Guayana Highland of northeastern South America. Two species, *S. calendulacea* and *S. trilobata*, are used medicinally, and *S. trilobata* is also known to cause contact dermatitis (Lovell, 1993; pers. obs.).

Sphagneticola brachycarpa (Baker) Pruski, comb. nov. Basionym: *Wedelia brachycarpa* Baker, in C. Martius, Fl. Bras. 6(3): 181. 1884. *Seruneum brachycarpum* (Baker) Kuntze, Revis. Gen. Pl. 1: 365. 1891, nom. illeg. (*Seruneum* Rumphius ex Kuntze, 1891, includes the type of *Wedelia* Jacquin, 1760.) *Stemmodontia brachycarpa* (Baker) Morong, Ann. New York Acad. Sci. 7: 147. 1893. *Thelechitonia brachycarpa* (Baker) H. Robinson & Cuatrecasas, Phytologia 72: 142. 1992. TYPE: Paraguay. Along the margins of Río Paraguay near Assumption, 28 Apr. 1874, Balansa 855 (holotype, K not seen [photograph and fragment, US]; isotype, G not seen [photograph, US]).

?*Wedelia paludosa* DC. var. *villosa* Baker, in C. Martius, Fl. Bras. 6(3): 181. 1884. *Wedelia brasiliensis* (Sprengel) S. F. Blake var. *villosa* (Baker) S. F. Blake, J. Wash. Acad. Sci. 21: 332. 1954. TYPE: Guyana. Ad fluv. Essequibo et Rupununi, s.d., Appun 2508 (holotype, K not seen nor found).

Thelechitonia muricata Cuatrecasas, Bull. Soc. Bot. France 101: 242. 1954. TYPE: Colombia. Meta: Río Casanare, Esmeralda, 130 m, 19 Oct. 1938, Cuatrecasas 3902 (holotype, F not seen [photograph, US]; isotype, US).

Distribution. Venezuela (Guayana and in the Llanos), Colombia, Guyana, Peru, Brazil, Bolivia, Paraguay, and Argentina.

The leaves of this species are unlobed, and the plants are more erect than the two other New World species. Many specimens of this species have been determined previously as *W. brasiliensis* (Sprengel) S. F. Blake (a synonym of *S. trilobata*). Strother (1991) noted that such specimens "may represent a . . . species of *Complaya*."

Sphagneticola calendulacea (L.) Pruski, comb. nov.

Basionym: *Verbesina calendulacea* L., Sp. Pl. 902. 1753. *Jaegeria calendulacea* (L.) Sprengel, Syst. Veg. 3: 590. 1826. *Wedelia calendulacea* (L.) Lessing, Syn. Compos. 222. 1832, non Persoon 1807. *Seruneum calendulaceum* (L.) Kuntze, Revis. Gen. Pl. 1: 365. 1891, nom. illeg. (*Seruneum* Rumphius ex Kuntze, 1891, includes the type of *Wedelia* Jacquin, 1760.) TYPE: "Zeylona:" s.d., Hermann [lectotype, chosen here, Herb. Hermann, no. 311, vol. 1, fol. 73 (BM not seen [photograph, US]); possible isoelectotypes, Herb. Hermann, no. 311, vol. 2, fol. 16 (BM not seen [photograph, US]), Herb. Hermann, no. 311, vol. 3, fol. 21 (BM not seen [photograph, US]), Herb. Hermann, no. 311, vol. 4, fol. 43 (BM not seen [photograph, US]), Collectio plantarum Zeylanicum. . . p. 65 (bottom center) (Bibliothèque de l'Institut de France [photograph, US]). Grierson (1980) listed "TYPE: Herb. Herman [sic] (BM)"; however, I have seen photographs of four Hermann specimens of this species scattered between four of the five volumes of the Hermann collection. Thus, the statement by Grierson is not specific enough for formal lectotypification (C. Jarvis, pers. comm.). The Hermann specimen on p. 65 of the Burman herbarium folio in the Bibliothèque de l'Institut de France was presumably the basis for tab. 22, fig. 1, in Burman, Thes. Zeylan. 52. 1737 [1736], cited in the protologue by Linnaeus (see Lourteig, 1966: 28), but because it is unlikely that Linnaeus saw this sheet it is not chosen as the lectotype. LINN 1021.6 not seen (IDC microfiche 177. 610.III.6) is marked in Linnaeus's hand "calendulacea 9" (Savage, 1945), referring this sheet to the ninth species of *Verbesina* in *Species Plantarum*, 1753. However, LINN 1021.6 is also labeled "chin[a]" (Savage, 1945), which does not agree with the data given by Linnaeus in the protologue. Thus, LINN 1021.6 was not chosen as the lectotype, nor is it listed here as a possible isoelectotype.

Solidago chinense Osbeck, Dagb. Ostind. Resa 241. 1757. Syn. nov. *Wedelia chinensis* (Osbeck) Merrill, Philipp. J. Sci. 12: 111. 1917. *Complaya chinensis* (Osbeck) Strother, Syst. Bot. Monogr. 33: 14. 1991. *Thelechitonia chinensis* (Osbeck) H. Robinson & Cuatrecasas, Phy-

tologia 72: 142. 1992. TYPE: China. Kwangtung: Dane's Island, near Whampoa, 20 Oct. 1751, *Osbeck s.n.* (holotype, LINN? not seen or S? not seen).

Distribution. China including Taiwan, India, Indo-China, Japan, Malaysia, the Philippines, and Sri Lanka (Li, 1978).

I examined the photographs of the four Hermann specimens of *Verbesina calendulacea* L. in BM (one of which is here designated as the lectotype), the photograph of the Hermann specimen in the Bibliothèque de l'Institut de France, and the protologue, and agree with Merrill's (1917) observation that *Solidago chinensis* Osbeck and *V. calendulacea* are conspecific. The Linnaean epithet was blocked in *Wedelia* by *W. calendulacea* Persoon, thus Merrill proposed the combination *W. chinensis*, which for much of this century has been the name used for this plant. The epithet "*calendulacea*" was available for this species in both *Complaya* and *Thelechitonia*, but was not used. This species was suggested by Fosberg (1993) as perhaps being better placed in *Wollastonia* DC. than in *Wedelia*, but is not properly placed in either genus.

Nicolson et al. (1988) listed opposite-leaved *Verbesina calendulacea* L. and *Solidago chinensis* Osbeck as synonyms of "*Wedelia chinensis* (L.) Merrill," a combination not made by Merrill. The "*Wedelia chinensis* (L.) Merrill," in the sense of Nicolson et al. (1988) is based on *Verbesina chinensis* L. [= *Anisopappus chinensis* (L.) Hooker f. & Arnott], a species with alternate leaves of tribe Inuleae. Nicolson et al. (1988) interpreted opposite-leaved *Solidago chinensis* Osbeck as either a "nom. illeg. or comb. nov.?" based on alternate-leaved *Verbesina chinensis* L., whereas I follow Merrill (1917) and treat *Solidago chinensis* as a different taxon based on a different type described by Osbeck.

Sphagneticola gracilis (Richard) Pruski, comb. nov. Basionym: *Wedelia gracilis* Richard, in Persoon, Syn. Pl. 2: 490. 1807. *Seruneum gracile* (Richard) Kuntze, Revis. Gen. Pl. 1: 365. 1891, nom. illeg. (*Seruneum* Rumphius ex Kuntze, 1891, includes the type of *Wedelia* Jacquin, 1760.) *Complaya gracilis* (Richard) Strother, Syst. Bot. Monogr. 33: 14. 1991. *Thelechitonia gracilis* (Richard) H. Robinson & Cuatrecasas, Phytologia 72: 142. 1992. SYNTYPES: Antigua and Santo Domingo, s.d., presumably Richard collections in P (not seen). The original Richard collection from Antigua was doubtfully referred to the species by Schulz (1911: 99–100), thus defining "the type locality as Santo Domingo" (Howard, 1989). I am unaware, however, whether a lectotype (sheet) designation has been

made. Specimens from both localities cited in the protologue match this species as circumscribed here, and lectotype designation is deferred until material in P is seen.

Distribution. Greater Antilles, Antigua, Barbuda, Guadeloupe, Martinique, St. Barthélemy, and St. Martin (Howard, 1989).

This West Indian endemic is closely related to *S. trilobata* but differs by smaller leaves, capitula, and cypselas.

Sphagneticola trilobata (L.) Pruski, comb. nov.

Basionym: *Silphium trilobatum* L., Syst. Nat., ed. 10: 1233. 1759. *Wedelia carnosia* Richard, in Persoon, Syn. Pl. 2: 490. 1807, nom. illeg. *Seruneum trilobatum* (L.) Kuntze, Revis. Gen. Pl. 1: 365. 1891, nom. illeg. (*Seruneum* Rumphius ex Kuntze, 1891, includes the type of *Wedelia* Jacquin, 1760.) *Wedelia trilobata* (L.) A. Hitchcock, Annual Rep. Missouri Bot. Gard. 4: 99. 1893. *Stemmodontia trilobata* (L.) Small, Fl. S.E. U.S. 1262, 1340. 1903. *Complaya trilobata* (L.) Strother, Syst. Bot. Monogr. 33: 14. 1991. *Thelechitonia trilobata* (L.) H. Robinson & Cuatrecasas, Phytologia 72: 142. 1992. TYPE: Tab. 107, fig. 2, in Plumier, Pl. Amer. 1757 (lectotype, designated by Howard, 1989).

Bupthalmum strigosum Sprengel, Neue Entd. 2: 140. 1821. *Acmella brasiliensis* Sprengel, Syst. Veg. 3: 592. 1826, nom. superfl. *Wedelia brasiliensis* (Sprengel) S. F. Blake, Contr. U.S. Natl. Herb. 26: 250. 1930, comb. illeg. TYPE: Brazil. s.d., *Sello s.n.* (holotype, P not seen)

Wedelia paludosa DC., Prodr. 5: 538. 1836. TYPE: Brazil. s.d., *Lund 611* (holotype, G-DC not seen [photograph, US; IDC microfiche 800. 935.I.3]).

Sphagneticola ulei O. Hoffmann, Notizbl. Königl. Bot. Gart. Berlin 3: 36. 1900. Syn. nov. TYPE: Brazil. Rio de Janeiro: in Sümpfen der Restinga der Gavea, Sep. 1899, *Ule 3914pp* (holotype, B destroyed, photographs in NY, US; lectotype, designated here from isotype, HBG). [Another sheet is also labeled *Ule 3914* (HBG), but was collected in Apr. 1895 at Jacarépaguá and is not type material.]

Distribution. *Wedelia* is widespread in Guayana (where it occurs from 119 to 900 m elevation) and in the rest of the Neotropics from Mexico and the West Indies south to Argentina; widely cultivated out-of-doors as an ornamental and naturalized in eastern Australia, Malaysia, Pacific islands, and warmer regions of the New World. It is grown in at least four U.S. states: California (in Berkeley fide J. Strother, pers. comm.), Florida (well known in south Florida; recently reported in Tallahassee (Anderson, 1995), near its northernmost limit), Ha-

waii, and Louisiana. The species has been noted in Louisiana by Odenwald and Turner (1978), but was not vouchered by them. It was not mentioned as cultivated in New Orleans by Seidenberg (1993), although it is used as an ornamental there (Melinda Taylor, pers. comm.; pers. obs.). *Sphagneticola trilobata* is here newly documented for Louisiana by the following out-of-doors collections from Baton Rouge, Lafayette, and New Orleans: *Harris* 774 (LSU), *Pruski et al.* 3711 (NO, NY), *Pruski* 3724 (US), *Pruski* 3742 (K, LSU, MO, NO, US), *Thomas* 22247 (NLU), *Thomas & Allen* 74948 (NLU), *Urbatsch* 5155 (LSU).

This species has variable leaf morphology. Thick-leaved forms, often cultivated, were previously referred to *W. carnososa*, whereas longer, more narrow-leaved forms were determined as either *W. brasiliensis* or *W. paludosa*. A complete list of synonyms is given in Schulz (1911).

TILESIA

During preparation of floristic treatments of neotropical Compositae, *Wulffia* Necker ex Cassini (not *Wolffia* Horkel ex Schleiden, 1844, Lemnaceae) was noted as a taxonomic synonym of *Tilesia*. Accordingly, *Wulffia* is reduced to the synonymy of *Tilesia*, and the three species and one variety of *Wulffia* are transferred to *Tilesia*.

Tilesia capitata G. Meyer was described as a new genus and species in *Primitiae Florae Essequiboensis* (Meyer, 1818). *Tilesia capitata* is the same as the species subsequently called either *Wulffia baccata* (L.) Kuntze or *W. stenoglossa* (Cassini) DC. Although the epithet "*baccata*" has priority, the name most widely used in Brazil and Venezuela is *W. stenoglossa* (Cassini) DC. due largely to use by Baker (1884) and Aristeguieta (1964).

Five years after Meyer's flora, Cassini (1823) treated *Coreopsis baccata* (the basionym of *Wulffia baccata*) as equal to the monomial *Wulffia* of Necker (Elem. Bot. 1: 35. 1790). Also, Cassini noted that the unpublished genus and species *Chylodia sarmentosa* Richard was possibly near or the same as *Wulffia*, and to avoid confusion with *Chilodia* R. Brown (1810), he suggested *Chatiakella* as a replacement generic name for Richard's *Chylodia*. Cassini was uncertain about the ultimate disposition of these names and treated them as potential synonyms. He said if these three genera were indeed synonymous they should be united under the oldest available name, which he took to be *Wulffia* Necker. Indeed, in Cassini's time names of Necker were accepted. Unfortunately, Necker's names are monomials and now new names in his

Elementa Botanica (1790) are "not to be treated" as genera (Art. 20.4 (b) Ex. 11, Greuter et al., 1988), and this work is listed in Appendix V (Opera Utique Oppressa) in Greuter et al. (1994).

Tilesia (1818) and *Wulffia* Necker ex Cassini (1823) were equated by Schultz-Bipontinus (1848) and Bentham (1873: 367) under *Wulffia*, the later genus. I do not wish to continue this misuse. Thus, I herein propose transfers of three species and one variety from *Wulffia* to the earlier *Tilesia*.

Lastly, literature search reveals a misattribution of the authorship of *Coreopsis baccata* by Jackson (1893–1895) in *Index Kewensis* to Linnaeus filius, where it appears in *Supplementum Plantarum* (Linnaeus filius, 1782). Additionally, Jackson noted that *Coreopsis baccata* also appears in Linnaeus's *Amoen. Acad.* as species no. 111 (Dalberg collection no. 15) on p. 262, 1785. However, it is noted here that *Coreopsis baccata* was earlier published by Linnaeus (though not indexed as such by Jackson, 1893–1895) in *Plantae Surinamenses* (Linnaeus 1775: 14) as an unnumbered taxon (Dalberg collection no. 15) and this name is cited below in the transfer of that taxon to *Tilesia*.

Tilesia G. Meyer, Prim. Fl. Esseq. 251. 1818.
TYPE: *Tilesia capitata* G. Meyer [= *Tilesia baccata* (L.) Pruski var. *baccata*].

Wulffia Necker, Elem. Bot. 1: 35. 1790, nom. illeg.; ex Cassini, in F. Cuvier, Dict. Sci. Nat. ed. 2, 29: 491. 1823. Syn. nov. TYPE: *Coreopsis baccata* L. [= *Tilesia baccata* (L.) Pruski var. *baccata*].

Chatiakella Cassini, in F. Cuvier, Dict. Sci. Nat. ed. 2, 29: 491. 1823. TYPE: *Chylodia sarmentosa* Richard ex Cassini [= *Tilesia baccata* (L.) Pruski var. *baccata*].

Chylodia Richard ex Cassini, in F. Cuvier, Dict. Sci. Nat. ed. 2, 29: 491. 1823, non *Chilodia* R. Brown, 1810. TYPE: *Chylodia sarmentosa* Richard ex Cassini [= *Tilesia baccata* (L.) Pruski var. *baccata*].

Tilesia is restricted to the Neotropics and contains a somewhat wide-ranging species with two varieties and two uncommon species. Two species (*T. baccata* var. *baccata* and *T. rubens*) occur in Guayana; one of them (*T. rubens*) is a Guayana Highland endemic. Full synonymies are given for three of the four taxa, but for *Tilesia baccata* var. *baccata* only pertinent and regional synonymy is given. *Tilesia* is partly characterized by eglandular leaves, rays sterile (when present), strongly striate pales, and baccate fruits lacking pappus. *Wedelia ambigua* S. F. Blake resembles *Tilesia* by strongly striate pales and epappose cypselas. *Wedelia ambigua*, however, has leaves glandular abaxially and fertile ray florets, and therefore is retained in *Wedelia*.

Tilesia baccata (L.) Pruski, comb. nov. Basionym: *Coreopsis baccata* L., Pl. Surinam. 14. 1775; L. f., Suppl. 380. 1782; L., Amoen. Acad. 262. 1785. *Pascalina baccata* (L.) Sprengel, Syst. Veg. 3: 602. 1827. *Wulffia baccata* (L.) Kuntze, Revis. Gen. Pl. 1: 373. 1891. TYPE: Surinam. S.d., *Dalberg 15* (holotype, LINN 1026.7 not seen [IDC microfiche 177. 614.I.6]).

Tilesia capitata G. Meyer, Prim. Fl. Esseq. 254. 1818. *Meyera capitata* (G. Meyer) Sprengel, Syst. Veg. 3: 601. 1826. *Wulffia capitata* (G. Meyer) Schultz-Bipontinus, Linnaea 21: 246. 1848, as "*Wulfia*." TYPE: Guyana. Essequibo, s.d., *Meyer 177* (holotype, GOET).

Helianthus? sarmentosus Richard, Actes Soc. Hist. Nat. Paris 1: 112 (as "105"). 1792. TYPE: French Guiana. Cayenne, s.d., *Leblond s.n.* (holotype, G not seen; possible isotype, G-DC not seen [IDC microfiche 800. 942.I.7]).

Verbesina oppositiflora Poiret, in Lamarck, Encycl. 8: 460. 1808. TYPE: French Guiana. Ile de Cayenne, s.d., *Martin s.n.* (holotype, herb. Desfontaines [FI?] not seen; isotype, G-DC not seen [IDC microfiche 800. 942.I.6]). The type status of a second specimen in G-DC not seen [IDC microfiche 800. 942.I.4] determined as *Verbesina oppositiflora* is uncertain. The type status of a specimen from the Martin herb. in G-DC not seen [IDC microfiche 800. 942.I.8] determined as "*Chiatakella*" *platyglossa* is also uncertain.

Helianthus membranifolius Poiret, in Lamarck, Encycl., Suppl. 3: 18. 1813 [as "*Verbesina membranifolia*" Poiret, in DC., Prodr. 5: 563, 619. 1836, orth. var.]. *Wulffia membranifolius* [(Poiret) DC.], Prodr. 5: 619. 1836, comb. illeg. provis. TYPE: French Guiana. Ile de Cayenne, s.d., *sin coll.* (holotype, herb. Desfontaines [FI?] not seen; isotype, P not seen [photograph, US]).

Gymnoloma maculata Ker Gawler, in Edwards, Bot. Reg. 8: t. 662. 1822. *Wulffia maculata* (Ker Gawler) DC., Prodr. 5: 563. 1836. TYPE: Cultivated at Chelsea, England, from material collected in Brazil (holotype, K not seen).

Chylodia sarmentosa Richard ex Cassini, in F. Cuvier, Dict. Sci. Nat. ed. 2, 29: 490. 1823. SYNTYPES: *sin loc.*, nos. 232 and 604 in herb. Surian (P not seen).

Chatiakella platyglossa Cassini, in F. Cuvier, Dict. Sci. Nat., ed. 2, 46: 402. 1827. *Wulffia platyglossa* (Cassini) DC., Prodr. 5: 563. 1836. TYPE: French Guiana. S.d., *Poiteau s.n.* (holotype, K [herb. Gay] not seen [photograph, US]). The type status of a specimen from the Martin herb. in G-DC not seen [IDC microfiche 800. 942.I.8] determined as "*Chiatakella*" *platyglossa* is uncertain.

Chatiakella stenoglossa Cassini, in F. Cuvier, Dict. Sci. Nat., ed. 2, 46: 403. 1827. *Wulffia stenoglossa* (Cassini) DC., Prodr. 5: 563. 1836. TYPE: *sin loc.*, herb. Surian s.n. (holotype, P not seen).

Aspilia bolivarana V. Badillo, Ernstia 23: 14. 1984. Syn. nov. TYPE: Venezuela. Amazonas: en bosque al lado de la pista de Santa Bárbara del Orinoco, 25 May 1975, *Berry 698* (holotype, VEN; isotype, MYF [photograph, NY, US]).

Distribution. Central America, the West Indies, and tropical South America.

This is the sole yellow-flowered, radiate species of *Tilesia*. It occurs near or along waterways or forest margins and is often collected, although its occurrence is only sporadic.

Tilesia baccata var. **discoidea** (S. F. Blake) Pruski, comb. nov. Basionym: *Wulffia baccata* var. *discoidea* S. F. Blake, J. Wash. Acad. Sci. 28: 491. 1938. TYPE: Ecuador. Napo: near Tena, 400 m, 5 Apr. 1935, *Mexia 7170* (holotype, US).

Wulffia scandens DC., Prodr., 5: 564. 1836. Syn. nov. TYPE: Peru. 1832, *Poeppig pl. exs n. 24. diar. 1663.* (holotype, G-DC not seen [photograph, US; IDC microfiche 800. 942.II.8]).

Distribution. Ecuador, northern Peru, western Brazil, and possibly Colombia.

This variety is recognized by yellow-flowered, discoid capitula. The distinctiveness of this variety was pointed out to me by Harold Robinson, who recognizes it in his forthcoming *Heliantheae* treatment in the *Flora of Ecuador* series.

Tilesia macrocephala (H. Robinson) Pruski, comb. nov. Basionym: *Wulffia macrocephala* H. Robinson, Phytologia 56: 259. 1984. TYPE: Ecuador. Pastaza: Lorocachi, Pica a Lagatococha a 1 hora siguiendo margen derecha del Río Curaray, sector sur del campamento militar, 1°39'S, 75°59'W, 200 m, 1 June 1980, *Jaramillo, Coello & Freire 31746* (holotype, US).

Wulffia trujilloi V. Badillo, Ernstia, ser. 2, 3: 127. 1994. Syn. nov. TYPE: Venezuela. Yaracuy: Pitigao, camino Cocorote-Aroa, 1600 m, 26 Feb. [on isotype] or Oct. [in protologue] 1950, *Trujillo & Fernández 918* (holotype, MY not seen; isotype, MY).

Distribution. Colombia, Ecuador, and Andean Venezuela.

This radiate species is characterized by large capitula, foliar outer phyllaries, and reddish corollas. Venezuelan *Wulffia trujilloi* does not differ significantly in reproductive or vegetative features from *T. macrocephala* and is here reduced to synonymy.

Tilesia rubens (Alexander) Pruski, comb. nov. Basionym: *Wulffia rubens* Alexander, Lloydia 2: 217. 1939. TYPE: Guyana. NW slopes of Kanuku Mountains, in drainage of Moku-moku Creek (Takutu tributary), 200–300 m, 5 Apr. 1938, *Smith 3456* (holotype, NY; isotype, US). Figure 1.

Distribution. This species is endemic to the Kanuku Mountains and the Northern Rupununi Savanna in the Guayana Highland of Guyana, where it occurs from 107 to 300 m elevation.

This radiate species also has reddish flowers, but is recognized by small capitula, non-foliar outer phyllaries, and narrow leaves.

TUBERCULOCARPUS

At the generic level a significant recent modification was the reduction of the traditionally recognized *Aspilia* into the synonymy of *Wedelia* by Robinson (1992). The subsequent transfer of most neotropical species of *Aspilia* (including Venezuelan *A. rubra* Aristeguieta) to *Wedelia* by Turner (1992), who did not see material (type and/or non-type) for all species transferred (B. Turner, pers. comm.), did not solve the problem. For example, *W. rubra* (Aristeguieta) B. L. Turner is not a *Wedelia*.

Aspilia rubra differs from the neotropical species traditionally referred to *Aspilia* by bright orangish red ray corollas with abaxially glandular limbs and by tuberculate disk cypselas, and from species traditionally referred to *Wedelia* by sterile ray florets in addition to the tuberculate disk cypselas. Because of bright orangish red ray corollas and tuberculate disk fruits *A. rubra* is anomalous and cannot be satisfactorily placed in any existing genus. It is designated here as the type of a new, unspecific genus, *Tuberculocarpus*.

Genera of the Ecliptinae from Guayana with species that may have tuberculate fruits include *Acmella* Richard, *Baltimora* L., *Eclipta* L., *Eleutheranthera* Poiteau ex Bosc, *Sphagneticola*, *Synedrella* Gaertner, *Verbesina* L., and now *Tuberculocarpus*. Of these, only *Tuberculocarpus* consistently has sterile ray florets. *Verbesina* rarely has sterile rays and the second, less common species of *Eleutheranthera* has sterile rays. The other Guayanan genera with tuberculate fruits all have pistillate ray florets (when present), and are thus readily distinguished from *Tuberculocarpus*. Furthermore, *Acmella*, *Synedrella*, and *Verbesina* have flattened cypselas, thereby differing from the other five genera. Among the remaining five genera *Baltimora* is unique in having an open diffuse capitulescence and capitula with the disk florets functionally staminate; *Eclipta* differs by filiform pales and quickly deciduous corollas; *Eleutheranthera* by loosely fused anthers and in the common species by lacking ray florets; *Sphagneticola* by creeping habit with stems rooting at the nodes; and *Tuberculocarpus* by bright orangish red ray corollas.

***Tuberculocarpus* Pruski, gen. nov.** TYPE: *Aspilia rubra* Aristeguieta [= *Tuberculocarpus ruber* (Aristeguieta) Pruski].

Herbacea perennis vel fruticosa pauciramosa pubescens; folia simplicia opposita brevipetiolata, lamina lanceolata 5–16.5 × 0.4–3(–5.5) cm supra strigosa subtus strigosa et glandulosa; capitulescentia terminalis saepius monocephala, pedunculis erectis 8 cm usque longis; capitula radiata paleacea, flosculis 50–86; flosculi radiati 10–16 steriles, corolla aurantiaco-rubra, glandulosa et puberula; flosculi disci 40–70, lobis puberulis et pauciglandulosus; styli rami apice papilloso; antherae nigrae, appendicibus apicalibus glandulosus; achaenia valde tuberculata, corona apicali breviori ca. 0.5 mm alta, aristis nullis.

Perennial herbs to subshrubs 0.3–2 m tall; stems erect or leaning, few-branched, subterete, pubescent on young growth, glabrescent below. Leaves simple, opposite, short-petiolate; petioles 2–4 mm long, strigose; blades lanceolate, 5–16.5 × 0.4–3(–5.5) cm, chartaceous, pinnately veined, basally cuneate, sometimes narrowly so, the margins entire or occasionally weakly and remotely denticulate, apically narrowly acuminate, the adaxial surfaces strigose, trichomes leaning toward apices of blades, the abaxial surfaces with trichomes as above, also glandular. Capitulescences terminal, monocephalous or occasionally with another capitulum (rarely with 2 additional capitula) from most distal node; peduncles erect, non-leafy, pubescent, 2–8 cm long. Capitula radiate, 50–86-flowered; involucre campanulate to hemispherical, (7–)10–15 mm tall and broad; phyllaries ca. 15, in 2 series, subequal or nearly so, herbaceous, weakly imbricate, lanceolate, narrowly acute or acuminate, (7–)10–15 × 2–3.5 mm, pubescent, also sometimes weakly glandular, weakly 3-striate or the veins obscure; receptacles flat or convex, paleate, the pales elliptic-lanceolate, ca. 5 mm long, stiff, conduplicate, glabrous and tan proximally, strigose and reddish distally, the apices often abruptly mucronate, the mucro often callous-tipped. Ray florets 10–16, sterile, lacking styles; corollas orangish red, the tubes 1–1.5 mm long, weakly puberulent, the limbs exerted from the involucre, 11–13 × 3–4 mm, ca. 10-veined, the abaxial surfaces glandular and often also puberulent on the veins, the apices 3-lobed. Disk florets 40–70, bisexual; corollas yellowish orange, 3–4 mm long, the tubes 0.6–0.7 mm long, the throats narrowly campanulate, ca. 2 mm long, the lobes 0.4–0.6 mm long, deltoid, strongly pilose within or marginally, weakly glandular and with a few hairs on the outer surfaces; anthers weakly exerted, ca. 1.8 mm long, the thecae black, the apical appendages ovate, ca. 0.2 mm long, black or occasionally tan near connectives, glandular; styles



Figure 4. *Tuberculocarpus ruber* (Aristeguieta) Pruski (Steyermark et al. 131525). Photo taken by Bruno Manara at Tobogán de la Selva near Puerto Ayacucho, Amazonas, Venezuela.

yellow, weakly exserted, the branches ca. 1 mm long, spreading to reflexed but not coiled, with paired stigmatic lines, apically acute, papillose, especially so at the apices. *Cypselas* obovoid, somewhat compressed and with small wings, shoulders, and an apical neck, the body 4–4.5 mm long, each face sometimes with paired longitudinal ridges, black, tuberculate at maturity, weakly puberulent at apices, the carpopodia small, non-sculptured, elaiosomes absent; *pappus* coroniform, ca. 0.5 mm tall, on top of the neck of the cypselas, aristae absent.

Tuberculocarpus ruber (Aristeguieta) Pruski, comb. nov. Basionym: *Aspilia rubra* Aristeguieta, Mem. New York Bot. Gard. 9: 369. 1957. *Wedelia rubra* (Aristeguieta) B. L. Turner, Phytologia 72: 394. 1992. TYPE: Venezuela. Amazonas: occasional on savanna edge between Puerto Ayacucho and Samariapo, 100–120 m, 11 Nov. 1953, Maguire, Wurdack & Bunting 36147 (holotype, NY; isotype, US). Figures 1, 2G–L, 4.

Distribution and ecology. This taxon is endemic to Amazonas, Venezuela (near Coromoto, Puerto

Ayacucho, Rincones de Chacorro, and Ríos Cataniapo and Coromoto), where it occurs in savannas, around *Mauritia* palm swamps, riverine forests, fields, roadsides, and grassy areas on granitic lajas. *Tuberculocarpus ruber* is known from 37 to 150 m elevation; and it flowers in April–July, September, and November–January. The species is to be expected from adjacent regions of Bolívar, Venezuela, and Vichada, Colombia.

VERBESINA

Five of the approximately 300 species of the New World genus *Verbesina* are known in Guayana, one non-endemic with pinnatifid leaves (*V. columbiana* B. L. Robinson) and four endemic species with entire leaves. Endemic *V. ligulata* was described as a subspecies of *V. schomburgkii* Baker, but is raised here to species level.

Robinson and Greenman (1899) and Blake (1925) recognized both *Verbesina guianensis* and *V. schomburgkii*. These authors did not see the two syntypes of *V. guianensis*, and this species was not lectotypified by them. Steyermark (Steyermark et al. 1953: 676–677) recognized only one of the two species. He used the name *Verbesina schomburgkii*

Schultz-Bipontinus ex Klatt (31 May 1884), and placed *V. guianensis* Baker (1 May 1884) into synonymy. Steyermark used the Schultz-Bipontinus name because it first appeared in the literature in 1849 (in Rich. Schomburgk, Reis. Br. Guiana 3: 1078. 1848 [1849]), albeit then solely as a nomen. This disposition was followed by Aristeguieta (1964). However, the name having priority is *Verbesina guianensis*, and *V. schomburgkii* is here placed in synonymy.

Verbesina guianensis Baker, in C. Martius, Fl. Bras. 6(3): 211. 1 May 1884. TYPE: Guyana. Pacaraima Mountains, s.d., *Rob. Schomburgk, ser. I, add. 194.S* (lectotype, designated here, K [photograph, GH; photograph and fragment, US]).

Verbesina schomburgkii Schultz-Bipontinus, in Rich. Schomburgk, Reis. Br. Guiana 3: 1078. 1848 [1849], nom. nud.; ex Klatt, Leopoldina 20: 94. 31 May 1884. Syn. nov. TYPE: Venezuela. Bolívar: Mount Roraima, Nov. 1842, *Rich. Schomburgk 993* (holotype, B destroyed [photograph, GH, NY, US; fragments and tracing, GH]).

Distribution. This species is known only from Bolívar, Venezuela, and Guyana, but is to be expected in adjacent Brazil.

This discoid species is characterized by oblong leaves and weakly flaring disk corolla tubes.

Verbesina ligulata (Maguire & Wurdack) Pruski, comb. nov. Basionym: *Verbesina schomburgkii* Schultz-Bipontinus subsp. *ligulata* Maguire & Wurdack, Mem. New York Bot. Gard. 9: 369. 1957. TYPE: Venezuela. Amazonas: Cerro Yutaje, Caño Yutaje, 1500 m, 17–19 Feb. 1953, *Maguire & Maguire 35283* (holotype, NY; isotypes, GH, US). Figure 1.

Distribution. This species is endemic to the Venezuelan Guayana, where it occurs in Bolívar (Gran Sabana, Ilú-tepui, Macizo del Chimantá) and Amazonas (Cerro Yutajé, Río Coro west of Cerro Yutajé), from (800–)1200 to 2150 m elevation.

This species is most closely related to discoid *V. guianensis*, and to radiate *V. angusta* Maguire, Steyermark & Wurdack (Bolívar, Venezuela), *V. pilosa* Maguire & Wurdack (Bolívar, Venezuela), and *V. tatei* S. F. Blake (Sucre, Venezuela). It is recognized by radiate capitula with distinctly graduated, 3-seriate involucre, by pilose, generally elliptic leaves, and by stout, strongly flaring disk corolla tubes. Collections with radiate capitula from the Chimantá Massif, Bolívar, Venezuela, have nearly glabrous, oblong leaves and thin, weakly flaring disk corolla

tubes. These collections seem intermediate between *V. guianensis* and *V. ligulata*, and are not satisfactorily placed.

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Literature Cited

- Anderson, L. C. 1995. Noteworthy plants from north Florida. VI. Sida 16: 581–587.
- Aristeguieta, L. 1964. Compositae. Flora de Venezuela 10: 1–941.
- Baker, J. G. 1884. Compositae IV. Pp. 135–442 in C. F. P. von Martius (editor), Flora Brasiliensis, Vol. 6, Pars III. Munich.
- Bentham, G. 1873. Compositae. Pp. 163–533 in G. Bentham & J. D. Hooker (editors), Genera plantarum. Vol. 2, part 1. London.
- Blake, S. F. 1921. Revision of the genus *Oyedaea*. Contr. U. S. Natl. Herb. 20: 411–422.
- . 1925. On the status of the genus *Chaenoccephalus*, with a review of the section *Lipactinia* of *Verbesina*. Amer. J. Bot. 12: 625–640.
- Cassini, H. 1823. *Chylodia* ou *Chatiakella*. Pp. 491–493 in F. Cuvier (editor), Dictionnaire des sciences naturelles dans lequel on traite méthodiquement des différents êtres de la nature, ed. 2, 29. Paris.
- Cremers, G. & M. Hoff. 1995. Inventaire taxonomique des plantes de la Guyane Française V—Les Dicotyledones—1ère partie: Acanthaceae à Bixaceae. Muséum National d'Histoire Naturelle, Paris.
- Cuatrecasas, J. 1954. Nouvelles Composées de l'Amérique du Sud. Bull. Soc. Bot. France 101: 242–246.
- Fosberg, F. R. 1993. The Forster Pacific Islands collection from Captain Cook's Resolution voyage. Allertonia 7: 41–86.
- Funk, V. A. 1991. The Compositae of the Guianas, I: Heliantheae (Heliantheae, Tageteae, Coresopideae). Rhodora 93: 256–267.
- Greuter, W., F. R. Barrie, H. M. Burdet, W. G. Chaloner, V. Demoulin, D. L. Hawksworth, P. M. Jørgensen, D. H. Nicolson, P. C. Silva, P. Trehane & J. McNeill (Editors). 1994. International code of botanical nomenclature (Tokyo Code), adopted by the Fifteenth International Botanical Congress, Yokohama, August–September 1993. Regnum Veg. 131.
- , H. M. Burdet, W. G. Chaloner, V. Demoulin, R. Grolle, D. L. Hawksworth, D. H. Nicolson, P. C. Silva, F. A. Stafleu, E. G. Voss & J. McNeill (Editors). 1988. International code of botanical nomenclature, adopted by the Fourteenth International Botanical Congress, Berlin, July–August 1987. Regnum Veg. 118.
- Grierson, A. J. C. 1980. Compositae. Pp. 111–278 in M.

- D. Dassanayake & F. R. Fosberg (editors), *A Revised Handbook to the Flora of Ceylon*. Vol. 1. Amerind Publishers, New Delhi.
- Hoffmann, O. 1890–1894. *Compositae*. Pp. 87–391 in A. Engler & K. Prantl (editors), *Die natürlichen Pflanzenfamilien*. Vol. 4, part 5. Leipzig.
- Howard, R. A. 1989. *Compositae*. Pp. 509–620 in *Flora of the Lesser Antilles, Leeward and Windward Islands*. Vol. 6, *Dicotyledoneae—Part 3*. Arnold Arboretum, Harvard University, Jamaica Plain.
- Jackson, B. D. (Editor). 1893–1895. *Index Kewensis plantarum phanerogamarum*, 2 vols. Clarendon Press, Oxford.
- Karis, P. O. & O. Ryding. 1994. Chapter 22, Tribe Heliantheae. Pp. 559–624 in K. Bremer, *Asteraceae: Cladistics & Classification*. Timber Press, Portland, Oregon.
- Li, Hui-Lin. 1978. *Compositae*. Pp. 768–965 in Hui-Lin Li et al. (editors), *Flora of Taiwan*. Vol. 4. Epoch Publishing, Taipei.
- Linnaeus, C. 1775. *Plantae Surinamenses*. Uppsala.
- . 1785. *Plantae Surinamenses*. Pp. 249–267 in J. C. D. Schreber (editor), *Amoenitates Academicae*, Vol. 8.
- Linnaeus, C., filius. 1782. *Supplementum Plantarum*. Braunschweig.
- Lourteig, A. 1966. L'herbier de Paul Hermann, base du *Thesaurus Zeylanicus* de Johan Burman. *Taxon* 15: 23–33.
- Lovell, C. R. 1993. *Plants and the Skin*. Blackwell Scientific Publications, London.
- Merrill, E. D. 1917. Notes on the flora of Kwangtung Province, China. *Philipp. J. Sci., Bot.* 12: 99–111.
- Meyer, G. F. W. 1818. *Primitiae Florae Essequiboensis*. Göttingen.
- Necker, N. J. 1790. *Elementa Botanica*, 3 Vols. Neuwied.
- Nicolson, D. H., C. R. Suresh & K. S. Manilal. 1988. An interpretation of Van Rheedee's *Hortus Malabaricus*. *Reg. Veg.* 119.
- Odenwald, N. G. & J. R. Turner, undated, ca. 1978. *Plants for Designers. A Handbook for Plants of the South*. Claitor's Publishing Division, Baton Rouge.
- Robinson, B. L. & J. M. Greenman. 1899. Synopsis of the genus *Verbesina*, with an analytical key to the species. *Proc. Amer. Acad. Arts* 34: 534–566.
- Robinson, H. 1981. A revision of the tribal and subtribal limits of the Heliantheae (Asteraceae). *Smithsonian Contr. Bot.* 51: i–iv, 1–102.
- . 1984a. Studies in the Heliantheae (Asteraceae). XXXIX. New species of *Aspilia* from Brazil. *Phytologia* 56: 262–286.
- . 1984b. Studies in the Heliantheae (Asteraceae). XXXI. Additions to the genus *Dimerostemma*. *Proc. Biol. Soc. Wash.* 97: 618–626.
- . 1992. New combinations in *Elaphandra* Strother (Ecliptinae–Heliantheae–Asteraceae). *Phytologia* 72: 144–151.
- . 1994. A new species of *Oblivia* and a new combination in *Elaphandra* from Ecuador (Ecliptinae: Heliantheae: Asteraceae). *Phytologia* 76: 24–26.
- & J. Cuatrecasas. 1992. *Thelechitonia* Cuatrecasas, an older name for *Complaya* Strother (Ecliptinae–Heliantheae–Asteraceae). *Phytologia* 72: 141–143.
- Savage, S. 1945. *A Catalogue of the Linnaean Herbarium*. Linnean Society of London, London.
- Schultz-Bipontinus, C. H. 1848. *Plantae Kegelianae Surinamenses: Compositae*. *Linnaea* 21: 242–248.
- Schulz, O. E. 1911. V. *Compositarum genera nonnulla*. Pp. 78–144 in I. Urban (editor), *Symbolae antillanae seu fundamenta florae Indiae occidentalis*. Vol. 7. London.
- Seidenberg, C. 1993. *The New Orleans Garden: Gardening in the Gulf South*. Univ. Mississippi Press, Jackson.
- Steyermark, J. A. & Collaborators. 1953. Contributions to the flora of Venezuela. Botanical exploration in Venezuela—III. From Ericaceae through Compositae. *Fieldiana, Bot.* 28: 449–678.
- Strother, J. L. 1991. Taxonomy of *Complaya*, *Elaphandra*, *Iogeton*, *Jefea*, *Wamalchitamia*, *Wedelia*, *Zexmenia*, and *Zyzyxia* (Compositae–Heliantheae–Ecliptinae). *Syst. Bot. Monogr.* 33: 1–111.
- Turner, B. L. 1992. New names and combinations in New World *Wedelia* (Asteraceae, Heliantheae). *Phytologia* 72: 389–395.